

Mapping the San Diego Underground

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Abstract

A three-dimensional geologic map of the San Diego/Tijuana area was created to help define the local groundwater resources. Creating the map, the first of its kind for this area, involved use of pre-existing GIS (geographic information systems) datasets including a DEM (digital elevation model), surface geologic maps, drilling and geophysical logs, literature describing oil wells, water wells, and outcrops, and software to process the data. A total of 88 wells, which showed stratigraphy older than Quaternary age, helped provide depth information. Direct examination of data from multiple-depth wells installed since 2001 by the U.S. Geological Survey provided the most reliable “ground-truth” for geologic layers. The 3-D map will be used to help local water purveyors and their consultants understand the spatial extent, volume, and arrangement of local geologic layers for potential seasonal storage and extraction of groundwater resources. Updates on the San Diego Hydrogeology Project can be found at <http://ca.water.usgs.gov/sandiego/>.